WESTBAY® RETROFIT WELL SUMMARY

Location ID: JP-3

Field Representatives: Canavan, Giles, Hunnicutt-Mack, McClure, Pearson, Rivera

Purpose of Well: To monitor plume-front contamination and the effectiveness of the water treatment system for plume stabilization.

Date Started: 1/23/99 **Date Completed:** 9/2/99

Northing: 227464.71 **Easting:** 396409.23

Brass Cap: 4433.54' **Outer Casing:** 4434.43' **Inner Casing:** 4434.47'

Drilling Method: Mud Rotary

Drilling Contractor: Stewart Brothers Drilling Company **Driller:** Paul Hollar

Total Depth Borehole: 1020' **Diameter Borehole:** 12.25" to 105'; Reamed to 17.5"; 12.25" to TD.

Total Depth Surface Casing: 103' **Diameter Surface Casing:** 14" OD

Total Depth Conv. Well Casing: 1005' **Diameter Conv. Well Casing:** 4.5" OD

Total Depth 1.5" OD Westbay® Casing: 995'

Water First Detected: Not detected during drilling **Water Level Open Borehole:** 433' (from geophysical log)

Water Level Conv. Cased Borehole (post-development SS): 369.24' **Estimated Water Use** (pre- development): 89,600 gallons

Sampling Zones

Screened Zone	Sand Pack	Westbay® Zone (packer to packer)	Meas. Port Depth
508.53' to 518.57'	499' to 524'	505' to 525'	515'
688.89' to 698.98'	684' to 705'	685' to 705'	695'
819.17' to 829.26'	814' to 835'	815' to 835'	825'
964.52' to 974.61'	960' to 982'	960' to 980'	970'

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Conventional Well Casing Used

Diameter: 4.5" OD **Stainless Steel Type:** 304

Schedule 5

5-foot: 0 = 0 ft
10-foot: 0 = 0 ft
20-foot: 0 = 0 ft
Total Sch 5 Footage = 0 ft

Schedule 10

5-foot: 1 = 5 ft
10-foot: 4 = 40 ft
20-foot: 46 = 920 ft
Total Sch 10 Footage = 965 ft

Total Footage of Blank Risers: 965 ft

Stick-Up: 2.6 ft originally. Cut to 1.6 ft 8/99. Final stick-up (from brass cap) = 0.89 ft

Screen Used

Diameter: 4.5" OD **Slot Size:** 0.020" **Stainless Steel Type:** 304

400-600-ft Depth Rating

5-foot: 0 = 0 ft
10-foot: 1 = 10 ft
20-foot: 0 = 0 ft

600-1000-ft Depth Rating

5-foot: 0 = 0 ft
10-foot: 3 = 30 ft
20-foot: 0 = 0 ft

Total Footage of Screen: 40 ft

Annular Materials

Based on field notes and drill reports (approximate totals only).

Sand, grade 10/20
100-lb. Bags: 0
50-lb. Bags : 60
100-lb. Buckets: 520

50-lb Bags Benseal: 133
94-lb. Bags Cement: 115

Sand, grade 30/70
50-lb. Bags: 19
100-lb. Buckets: 0

Sand, grade 16/40
50-lb. Bags: 26

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Westbay® Casing Used:

10-foot: 87 = 870 ft

5-foot: 15 = 75 ft

2-foot: 1 = 2 ft

Packer: 10 = 50 ft Total Footage: 997 ft

Regular Couplings: 98 Well Depth: 995 ft

Pumping Ports: 4 Stick-Up: 2 ft joint; 1.71 ft (0.11 ft above stainless steel 8/99) Final stick-up (from brass cap) = 0.93 ft

Measurement Ports: 10

End Caps: 1

Magnetic Collars: 4

Pertinent Field Notes

For more detail, refer to Field Notebook #s DP 392/RFI/CMS (pages 22-27; 50-73; 76-80; 82-86; 88-92); TDP 392/RFI/CMS (pages 16-18; 31-35); Development #1 (pages 39-42; 63-64; 66; 68); Westbay® Installation (pages 49-59).

1/23/99-	Mobilized to site, rigged up and mixed mud. Spud borehole. Drilled mud rotary 12.25" pilot borehole to 65'-L. Hunnicutt.
1/24/99-	Drilled pilot 12.25" borehole from 65'-105'. Reamed borehole to 17.5" from 0'-105' below ground surface-L. Hunnicutt.
1/25/99-	Installed 14" outside diameter (OD) surface casing to 103' and grouted to surface-L. Hunnicutt.
1/26/99-	Rigged down, decontaminated rig and pipe, and mobilized to ST-7-M. McClure.
NOTE-	Drilled pilot borehole and set surface casing at ST-7. Then, installed stainless steel casing at WW-2 before returning to JP-3 to complete drilling.
2/16/99-	Remobilized to JP-3 (from WW-2). Drilled mud rotary 12.25" borehole from 103'- 170'-L. Hunnicutt.
2/17/99-	Drilled 170'-480'. Borehole deviation was ¼° from hole origin-M. McClure.

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Pertinent Field Notes Cont.

2/18/99-	Drilled 480'-685'. Borehole deviation was 0.8° from hole origin-G. Giles.
2/19/99-	Drilled 685'-765'. Reconfigured stabilizers to maintain borehole deviation < 1°. Borehole deviation was 1° from hole origin-G. Giles.
2/20/99-	Drilled 765'-967'. Borehole deviation was ½° from hole origin-L. Hunnicutt.
2/21/99-	Drilled 967'-1020' (Total Depth). Borehole deviation was just over ½° from hole origin. Tripped out. Geophysical logging began by Southwest Geophysical Services, Inc. (Electric log and Neutron logs completed)-L. Hunnicutt.
2/22/99-	Geophysical logging was completed (caliper, sonic, drift logs). Tripped in 2" tremie pipe-L. Hunnicutt.
2/23/99-	Installed 4.5" OD stainless steel casing to 1005' with 2.64' stick up. Installed annular materials to 982' (up to the sand pack of the bottom screen)-L. Hunnicutt and M. McClure.
2/24/99-	Installed annular materials from 982'-835' (up to the sand pack of screen #3)-M. McClure.
2/25/99-	Installed annular materials from 835'-736' (between screen #3 and screen #2)-M. McClure.
3/2/99-	Installed annular materials from 736'-617' (between screen #2 and screen #1). Varying yields for materials. Bridging?-L. Hunnicutt.
3/3/99-	Installed annular materials from 605' (after surging)-394'-M. McClure.
3/4/99-	Installed annular materials from 394'-190' and grouted to 170'-G. Giles.
3/5/99-	Grouted from 170-surface. Decontaminated rig and pipe and moved to ST-7-G. Giles.
NOTE-	For many dates, development summaries are taken from the development sheets, and no other details are available.
3/6/99-	
3/7/99-	Bailed well. 1,278 gallons removed. Water changed from medium brown and soapy to tan-brown and still soapy- G. Giles, L. Hunnicutt, J. Pearson, and M. Rivera.
3/24/99-	
4/11/99-	Swabbed well. 310 gallons removed from first screen (top). Water was black and slimy; 1,050 gallons removed from screen #2. Water dark gray; 800 gallons from screen #3. Water was greenish, yellowish gray and cleared significantly; 1,050 gallons removed from screen #4. Water initially brown but clearing-M. McClure, J. Pearson, and M. Rivera.

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Pertinent Field Notes Cont.

4/12/99- 4/14/99-	Pumped well. 3,280 gallons removed from the bottom screen; 420 gallons from screen #3; ~2,000 gallons from screen #2; and ~2,000 gallons from the top screen-G. Giles and J. Pearson.
NOTE-	Completed development (bailed, swabbed, and pumped) at BLM-38, BLM-39, and (pumped) at BLM-36; completed development (bailed, swabbed, jetted, and pumped) at ST-7 and PL-8; bailed and swabbed BLM-37; and installed Westbay® casing at BLM-36, BLM-39, and ST-7 before continuing JP-3 development.
7/11/99- 7/12/99-	Jetted well. Unchlorinated Well J water was used to jet each screen twice (6,400 gallons; a total of 25,600 gallons was jetted into the well)-L. Hunnicutt-Mack and J. Pearson.
NOTE-	Pumped BLM-37 and 700-J; airlifted, jetted, and pumped IS-2; and installed Westbay® casing at 700-H before continuing JP-3 development.
8/12/99- 8/18/99-	Pumped well. 8,144 gallons from screen #1. Turbidity was 1.22 NTU; 6,169 gallons from screen #2; 8,279 gallons from screen #3. Turbidity was 1.21 NTU; 8,273 gallons from screen #4. Turbidity cleared from 2.51 to 1.35 NTU-M. Canavan and J. Pearson. Development complete. Waiting for camera log to install Westbay® casing.
8/24/99-	Camera logged the well. The water above the first screen was cloudy, but clear within all four screens.
8/24/99-	Pumped 500 gallons total from well at 30 foot intervals while tripping up one joint at a time to clear water above the screens-M. Canavan.
8/25/99-	Set up tables and Westbay® MP 38 1.5" OD PVC casing, and performed two QA/QC checks. Tested tool (injection valve pressure). New pressure control unit (PCU) (box number two) leaked water from the pressure valve setting. Continued with PCU number one. Installed 225' of casing (995'-770')-M. Canavan and L. Hunnicutt-Mack.
8/26/99-	Completed Westbay® MP 38 casing installation (from 770'-surface). Set up for packer inflation. Began casing integrity (leak) test with 186' head differential-M. Canavan and L. Hunnicutt-Mack.
8/27/99-	Leak test completed. Casing did not leak. Inflated packers one and three and partially inflated the fourth packer (2.0 liters). Broke down equipment for weekend-G. Giles, L. Hunnicutt-Mack, and J. Pearson.

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Pertinent Field Notes Cont.

8/30/99-	Set up equipment to complete packer inflation. Retested tool pressure and performed blank wall test. Completed inflating packer four and inflated packer number two. PCU number one was replaced with a new PCU sent from Westbay® (PCU number three) because of fluctuations in the pump pressure-G. Giles.
8/31/99-	Inflated packers five and six and partially inflated packer seven (1 5/8 liters). Reservoir return hose was leaking. Re-cut and clamped hose-L. Hunnicutt-Mack.
9/1/99-	Completed inflating packer seven. Inflated packers eight and nine partially inflated packer ten (1.5 liters)-L. Hunnicutt-Mack.
9/2/99-	Completed packer inflation (packer ten). Cleaned up site-G. Giles. Installation complete. Turned well over to Technicians for Westbay® development.